Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

All claims previously being amended are shown with deleted text struck-through or double bracketed and new text underlined. Additionally, the status of each claim is indicated in parenthetical expression following the claim number.

WHAT IS CLAIMED IS:

1. *(Original)* A device for measuring mechanical conditions comprising:

   a sensing element comprising a plurality of carbon nanotubes; and

   an electrical probe in contact with the plurality of carbon nanotubes.

2. *(Original)* The device of Claim 1, further comprising a database of information which correlates electrical measurements made with the electrical probe to mechanical conditions in a quantifiable manner based upon previously measured standards.

3. *(Original)* The device of Claim 1, wherein the electrical probe is a four-point probe.

4. *(Original)* The device of Claim 1, wherein the electrical probe measures a property selected from the group consisting of conductivity, resistivity, conductance, resistance, and combinations thereof.

5. *(Original)* The device of Claim 1, wherein the mechanical conditions are selected from the group consisting of displacement, impact, stress, strain, and combinations thereof.

6. *(Original)* The device of Claim 1, wherein the carbon nanotubes are selected from the group consisting of single-wall carbon nanotubes, multi-wall carbon nanotubes, double-wall carbon nanotubes, carbon fibrils, buckytubes, fullerene tubes, vapor-grown carbon fibers, and combinations thereof.

7. *(Original)* The device of Claim 1, wherein the carbon nanotubes have been refined so as to provide for a desired level of homogeneity among the carbon nanotubes, wherein said

homogeneity is selected from the group consisting of uniform diameter, uniform length, uniform chirality, and combinations thereof.

8. *(Original)* The device of Claim 1, wherein the carbon nanotubes have been chemically modified.

9. *(Original)* The device of Claim 1, further comprising a plurality of carbon nanotubes assembled in a form selected from the group consisting of an array, a mat, a bucky-paper, and combinations thereof.

10. *(Original)* The device of Claim 1, wherein the carbon nanotubes are incorporated into a matrix material.

11. *(Original)* The device of Claim 1, wherein the carbon nanotubes are attached to a material.

12. *(Original)* The device of Claim 1, wherein said device is incorporated into an article of manufacture.

13. *(Original)* The device of Claim 12, wherein said article of manufacture is selected from the group consisting of airplanes, automobiles, engines, spacecraft, buildings, bridges, dams, gaskets, and combinations thereof.

14. *(Original)* The device of Claim 1, wherein said device is attached to an article of manufacture.

15. *(Original)* The device of Claim 14, wherein said article of manufacture is selected from the group consisting of airplanes, automobiles, engines, spacecraft, buildings, bridges, dams, gaskets, and combinations thereof.

16. *(Original)* The device of Claim 1, wherein the carbon nanotube(s) are arranged in a two-dimensional network.

17. *(Original)* The device of Claim 1, wherein the carbon nanotube(s) are arranged in a three-dimensional network.

18. *(Original)* A method of measuring mechanical conditions comprising:

selecting a plurality of carbon nanotubes;

attaching to the carbon nanotubes an electrical probe;

exposing the carbon nanotubes to a mechanical condition;

measuring a change in an electrical property of the carbon nanotubes with the electrical probe;

comparing this electrical property change to a database which correlates electrical property changes with mechanical conditions in a quantifiable manner; and

assigning a value to this mechanical condition based on this comparison.

19. *(Original)* The method of Claim 18, wherein the carbon nanotubes make up a sensing element that optionally comprises other materials selected from the group consisting of glass fibers, ceramic fibers, polymers, polymeric fibers, carbon fibers, nanotube fibers, spherical particles, and combinations thereof.

20. *(Original)* The method of Claim 18, wherein the electrical probe is a four-point probe.

21. *(Original)* The method of Claim 18, wherein the electrical probe measures a property selected from the group consisting of conductance, conductivity, resistance, resistivity, and combinations thereof.

22. *(Original)* The method of Claim 18, wherein the mechanical conditions are selected from the group consisting of displacement, stress, strain, and combinations thereof.

23. *(Original)* The method of Claim 18, wherein the carbon nanotubes are selected from the group consisting of single-wall carbon nanotubes, multi-wall carbon nanotubes, double-wall carbon nanotubes, carbon fibrils, buckytubes, fullerene tubes, vapor-grown carbon fibers, and combinations thereof.

24. *(Original)* The method of Claim 18, wherein the carbon nanotubes are in a form selected from the group consisting of an array, a mat, a buckypaper, and combinations thereof.

25. *(Original)* The method of Claim 18, wherein said method is used to sense mechanical

conditions selected from the group consisting of displacement, impact, stress, strain, and combinations thereof.

26. - 61. (*Cancelled*)